# GS-SR195V

## 1U Rack Mount Server

# System Installation Guide

# Table of Content

# Safety, Care and Regulatory Information

### ❧ Important safety information

Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.

* The product should be operated only from the type of power source indicated on the rating label.

* If your computer has a voltage selector switch, make sure that the switch is in the proper position for your area. The voltage selector switch is set at the factory to the correct voltage.

* The plug-socket combination must be accessible at all times because it serves as the main disconnecting device.

* All product shipped with a three-wire electrical grounding-type plug only fits into a grounding-type power outlet. This is a safety feature. The equipment grounding should be in accordance with local and national electrical codes. The equipment operates safely when it is used in accordance with its marked electrical ratings and product usage instructions

* Do not use this product near water or a heat source.

* Set up the product on a stable work surface or so as to ensure stability of the system.

* Openings in the case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space around the system for ventilation when you set up your work area. Never insert objects of any kind into the ventilation openings.

* To avoid electrical shock, always unplug all power cables and modem cables from the wall outlets before removing covers.

* Allow the product to cool before removing covers or touching internal components.


### ❧ Precaution for Product with Laser Devices

Observe the following precautions for laser devices:

* Do not open the CD-ROM drive, make adjustments, or perform procedures on a laser device other than those specified in the product's documentation.

* Only authorized service technicians should repair laser devices.


### ❧ Precaution for Product with Modems, Telecommunications, ot Local Area Network Options

Observe the following guidelines when working with options:

* Do not connect or use a modem or telephone during a lightning storm. There may be a risk of electrical shock from lightning.

\* To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

\* Do not plug a modem or telephone cable into the network interface controller (NIC) receptacle.

\* Disconnect the modem cable before opening a product enclosure, touching or installing internal components, or touching an uninsulated modem cable or jack.

\* Do not use a telephone line to report a gas leak while you are in the vicinity of the leak.

## ♦ Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

## ♦ FCC part 68 (applicable to products fitted with USA modems)

The modem complies with Part 68 of the FCC Rules. On this equipment is a label that contains, among other information, the FCC registration number and Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide this information to your telephone company.

If your telephone equipment causes harm to the telephone network, the Telephone Company may discontinue your service temporarily. If possible, they will notify in advance. But, if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect proper operation of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

The FCC prohibits this equipment to be connected to party lines or coin-telephone service.

The FCC also requires the transmitter of a FAX transmission be properly identified (per FCC Rules Part 68, Sec. 68.381 (c) (3)).

/ for Canadian users only /

## ♦ Canadian Department of Communications Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de Classe B prescrites dans le reglement sur le brouillage radioelectrique edicte par Industrie Canada.

## ♦ DOC notice (for products fitted with an Industry Canada-compliant modem)

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user satisfaction.

Before installing this equipment, users ensure that it is permissible to be connected to the facilities of the local Telecommunications Company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions might not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if resent are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

**NOTICE:** The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the sum of the Load Numbers of all the devices does not exceed 100.

/ for European users only /



CAUTION

 ❖ Danger of explosion if battery is incorrectly replaced.
 ❖ Replace only with the same or equivalent type recommended by the manufacturer.
 ❖ Dispose of used batteries according to the manufacturer's instructions.

# Introduction

Welcome to Gigabyte GS-SR195V Rack mount Server System Installation Guide. The guide provides instructions for configuration hardware for the GS-SR195V your system.

This installation guide will assist you in installing all the essential components for the sever system. For your protection, please read and undertand all of the safety and operating instructions regarding your Gigabyte Server and retain for future reference. The procedures in this guidebook assusme that your are a system or network administrator experienced in installing similar hardware.

# Contents Packages

When opening the package, please ensure the system components are not damaged during the shipping. Using the following checklist to verify the contents. If any component is missing or damaged in the system, please contact your vendor immediately.

- ☑ Chassis
- ☑ Power Supply (Installed)
- ☑ FAN Duct x 1
- ☑ Silm type CD-ROM drive (Installed)
- ☑ GS-SR195V System Installation Guide
- ☑ Driver CD for motherboard driver & utility

- ☑ GA-9IVDPC Motherboard (Installed)
- ☑ GC-REIU (PCI-E Riser Card)
- ☑ CPU Heat Sink x 2
- ☑ Cables (RJ45)
- ☑ Case Handle Kit x 2
- ☑ COM2 Cable x 1

## WARNING!

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

# Chapter 1 Features Summary

| | | |
|---|---|---|
| **Motherboard** | • | GA-9IVDPC |
| **Processor Supported** | • | Dual socket 604 for Intel® Xeon(Nocona/Irwindale) processor suopprts 3.6 GB and upper |
| | • | Intel® Xeon (Nocona/Irwindale) CPUs supports 800 MHz FSB |
| | • | 2nd cache depend on CPU |
| **Chipset** | • | Intel® E7320 Chipset |
| | • | Intel® 6300ESB |
| **System Memory:** | | |
| Memory Capacity | • | Supports maximum 32GB with DDR 266 |
| | • | Supports maximum 16GB with DDR333 |
| Memory Type | • | 8 x Registered DDR 266 scoket |
| | • | 6 x Registered DDR 333 scoket |
| Error Correction: | • | Single-bit Errors Correction, Multiple Bit Errors Detection |
| Additional Features | • | DIMM Sparing support, support for RASUM fail-over to an on-line spare DIMM device |
| **Expansion Slot** | • | 1 riser card supports 1 x PCI-X 64/66MHz add-on card |
| | • | 1 x PCI-E x8 slot |
| **RAID Supported** | • | Adaptec® 7901X |
| | • | Supports Host RAID 0,1,10 |
| **Cooling Fans:** | • | 4 X CPU Fans |
| | • | 1 X Power Fan |
| **Integrated LANs:** | | |
| Controller | • | Broadcom® BCM5721 and BCM 5705 GbE |
| Features | • | WOL, Teaming, ALB, AFT |
| | • | BCM5721 supports PCI-Express |
| | • | BCM5705 suports PCI 32/33MHz |
| **Integrated Graphics:** | | |
| Controller | • | Integrated ATI Rage XL |
| **Mass Storage System** | • | 4 x Hot Swapable SCSIHDDs |
| | • | 1 Slim Type 24X CD-ROM |

| SCSI Controller: | | |
|---|---|---|
| Controller | • | Adaptec AIC- 7901X chipset |
| RAID Supported | • | Supports Host RAID RAID 0, 1 and 10 data protection |
| Features | • | Mirroring supports automatic background rebuilds |
| | • | Features LBA and Extended Interrupt 13 drive translation in controller onboard BIOS |
| ZCR Supported (Optional) | • | One SO-DIMM I/F on board support for ZCR card extension |
| | • | Optional Adaptec ASR2015S & ASR2025S ZCR |
| | • | Supports Hardware RAID 0,1,5,10,50, JBOO |

| Front Panel | • | Power SW, Reset SW, NMI SW, UID SW, |
|---|---|---|
| | • | 2 x LAN LED |
| | • | 1 x Power/Sleep LED |
| | • | 1 x HDD LED |
| | • | 1 x System Status LED |
| | • | 2 x USB |

| Super I/O | | |
|---|---|---|
| Controller | • | ITE IT8712F-IX |
| Additional Features | • | Supports Wake on Ring |
| Hardware Monitor | • | CPU/System Fan Revolution detect |
| | • | CPU/System temperature detect |
| | • | System Voltage Detect |

| Built-in I/O | • | 2 x Serial ports (COM, 1 at rear and 1 at front) |
|---|---|---|
| | • | 1 x USB 2.0 dual-port connector |
| | • | 1 x VGA connector |
| | • | 2 x RJ45 LAN ports |
| | • | P/S 2 Keyboard and Mouse Connectors |

| System BIOS: | | |
|---|---|---|
| BIOS Type | • | Lincensed Phoenix on 8Mb Flash RAM |
| Special Features | • | Supports multi boot function |
| | • | User setting for hardware monitoring |
| | • | Supports PXE |
| | • | ACPI 1.0 Compliant/ ACPI defined S1, S4, and S5 |

**Server Management Functions:**

| | | |
|---|---|---|
| BMC Chip | • | NS IPMI 1.5 controller |
| Failure Detection | • | IPMI 1.5 specification of Server management |
| Event Logging | • | 32KB Nonvolatile Memory to Log System Failure Events |
| Remote Management | • | Follow the IPMI 1.5 specification of Server management |

**Environment**

| | | |
|---|---|---|
| Ambient Temperature | • | Operating Temperature: 5$^o$C to 35$^o$C |
| | • | Non-operating Temperature: 0$^o$C to 50$^o$C |
| Relative Humidity | • | 10-80% operating Humidity at 30$^o$C |

| | | |
|---|---|---|
| **Safety Regulations** | • | FCC, CE, BSMI, CB, |
| **System Dimention:** | • | 19"W x 1.73"H x 19.5"D |
| **Electrical Power Supply** | • | Single Power Supply 480W |

Note:

1. If you want to purchase USB FDD, we suggest MITSUMI as recommended brand.

2. The extended lan port is difficult to unplug, please handle it carefully.

# Chapter 2 System Hardware Installation

Please observe the safety information in chapter "Important Safety Information"
Do not expose the server to extreme environmental conditions. Protect it from dust, humidity, and heat.

## Step 2-1: Chassis Removal and Installation

Step 1   Loosen thscrew from the top cover.

Step 2   Push down the indentation located at two sides of the chassis, and slide toward to remove the top cover.

Step 3   Reverse Step 1, and 2 to replace the chassis cover.

Step 1

Screw
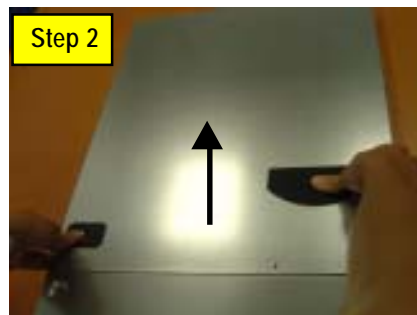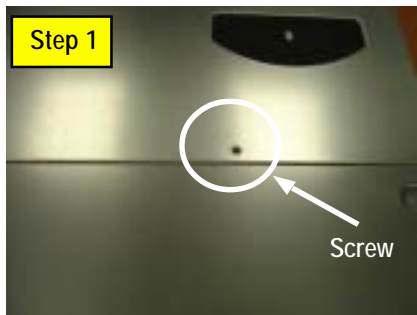
Step 2

**Note:** Before installing CPU, you must remove the FAN duct. For FAN duct removal, please see Sub-section 2-7 "**FAN Duct Removal and Installtion**" for detail instruction.

## Step 2-2: CPU Installation

Please make sure the CPU type and speed that are supported by the motherboard.

Step 1    Raise the locking bar on the socket.

Step 2    Aligning the pins of the processor with the socket, insert the processor into the socket.

Step 3    Close the handle completely and finish CPU installation.





Pin1 indicator
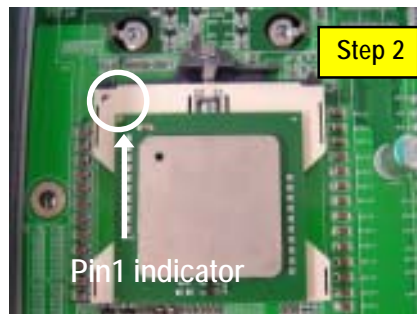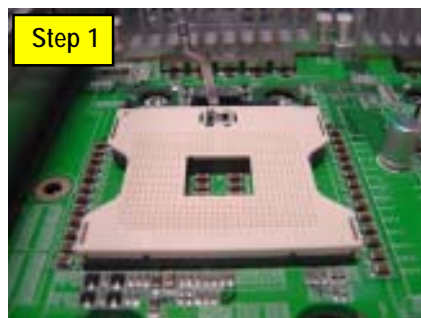
## Step 2-3: Heat Sink Installation

Step 1   Place the Heat Sink on the CPU. Before putting the heat sink on the CPU, please well
remember to apply the thermal conductivity compound on the CPU.

Step 2   Seat the heat sink with the four screws. Installation completed.
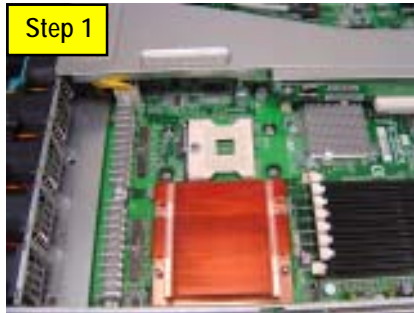


## Step 2-4: Memory Installation

1. The DIMM slot has a notch, so the DIMM memory module can only fit in one direction.

2. Insert the DIMM memory module vertically into the DIMM slot. Then push it down.

3. Close the plastic clip at both edges of theDIMM slots to lock the DIMM module.

4. **DIMM must be populated in order starting at the farthest slot from the MCH chipset.**
   **Each logical DIMM must be made of two identical DIMMs having the same device size on**
   **each and the same DIMM size.**

5. Reverse the installation steps when you wish to remove the DIMM module.

For detail DIMM Population, please refer to section **4-2: DDR DIMM Slot Population**
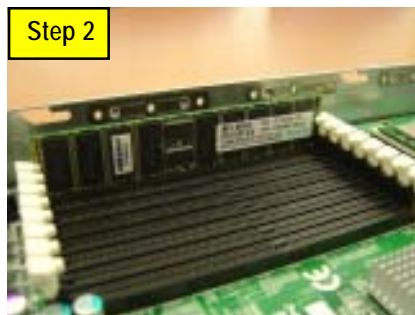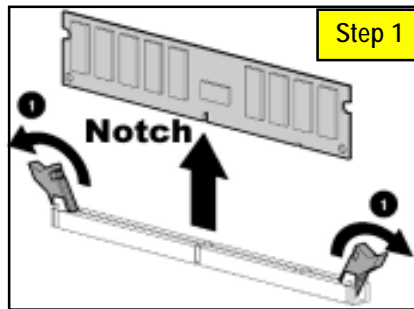
## Step 2-5: PCI Expansion Card Installation

GS-SR195V provides expansion riser slot for one PCI-X 64/66MHz slot; and one with PCI-E x8 and x4 slots. To install the peripheral, please go through the following steps.

**Note:**

Before installing the PCI expansion card, please check the card size limitation. Size limitation for PCI-E is listed below:

Heigth: 18.73mm(max) ; Length: 167.65mm(max) ; Width: 52mm(max)

Step 1    Lift the riser bracket slightly, then pull it out from the server chassis.

Step 2    Align the expansion card with the guiding groove. Slide the expansion card into the slot until the card firmly seats.

Step 3    Align the riser bracket to the system module (see the arrow direction mark 1), and push it to locked position.

   **Note!!** The riser bracket must be **firmtly seated** into the module. (See the arrowdirection), or it will cause power connection losses.

Step 4    Reverse Step 1 & 2 to lock the riser bracket firmly. Installation completed.
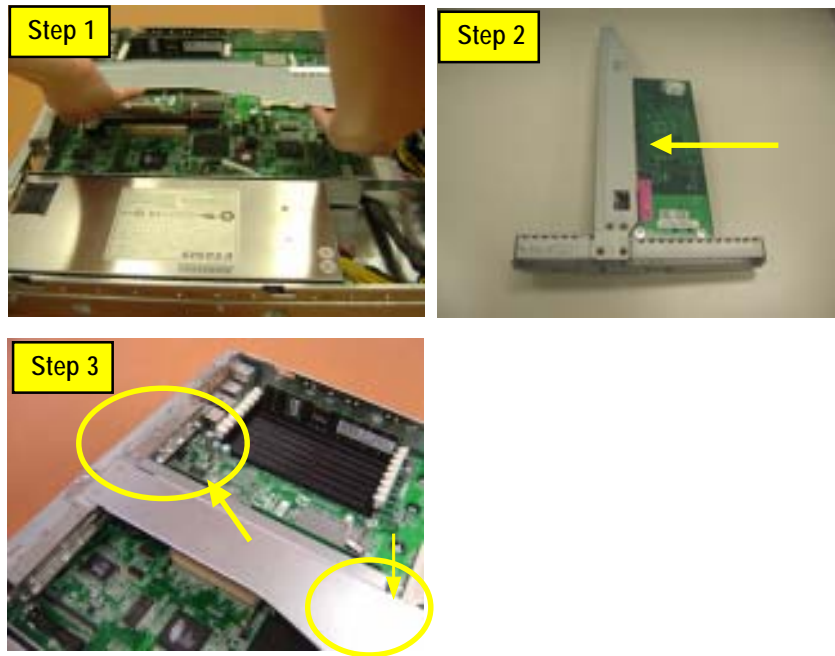
## Step 2-6: Hard Disk Drive Installation

Step 1   Press the release button and pull the blank out of the drive bay.

Step 2   Remove the hard disk blank. Slide hard disk into blank and secure it with screws.

Step 3   Slide the drive into the cage until it clicks, locking the drive into place. Connect cable  and
        power.





## Step 2-7: FAN Duct Removal and Installation

Step 1   Pull up the screw-holder and lossen the thumbscrews. Lift up to remove the fan duct.

Step 2   For FAN Duct Installation, place the fan duct on the top of  heat sinks. Fasten the screws to the
        locked position and push down the screw-holders.
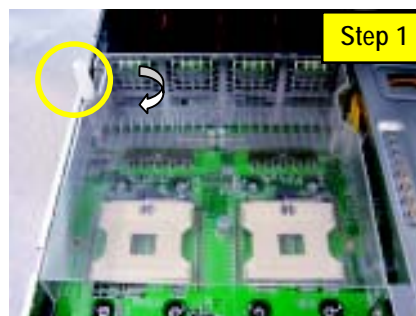
## Step 2-8: ZCR Installation and Removal (Optional Device)

Step 1    Aling a ZCR on the module such that the notch on the ZCR  exactly match the notches in
          the module.

Step 2    Push the card in untill it clicks. Then, press down  the card vertically.

Step 3    To remove the ZCR card, unlock the ZCR retaining clips.
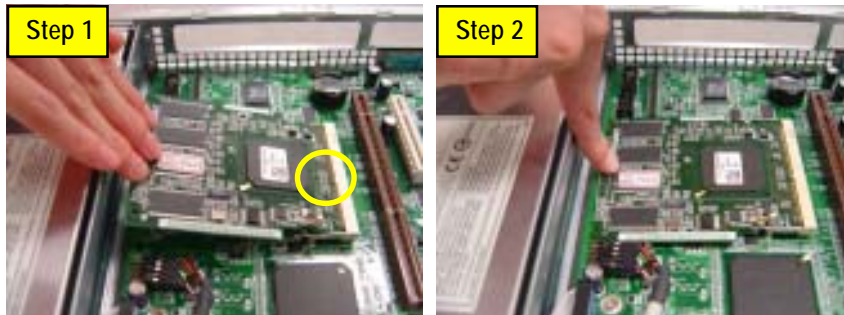
# Chapter 3 Appearance of GS-SR195V

## 3-1: Front View of GS-SR195V
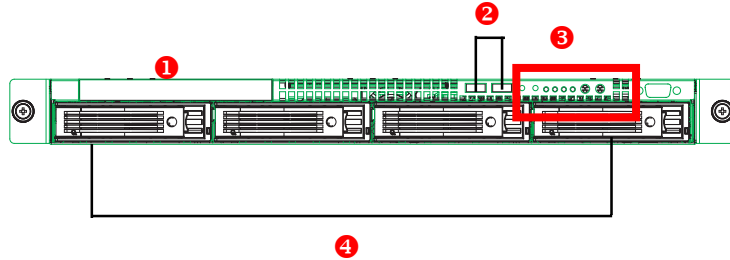
| ❶ | Slim Type CD-ROM |
|---|---|
| ❷ | USB Connector |
| ❸ | LEDs |
| ❹ | Hot swap SCSI HDDs |

## 3-2: Rear View of GS-SR195V
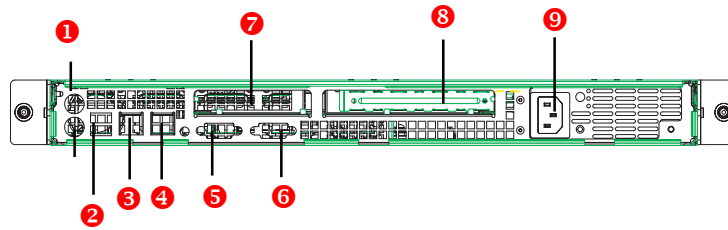


| ❶ | PS/2 Connectors |
|---|---|
| ❷ | USB Connectors |
| ❸ | LAN1 Port (RJ45) |
| ❹ | LAN2 Port (RJ45) |
| ❺ | COM Port |
| ❻ | VGA Port |
| ❼ | Limited Low-Profile Riser Slot |
| ❽ | Full-Height Riser Slot |
| ❾ | Power cord |

## 3-3: Switch and LED Indicators Introduction
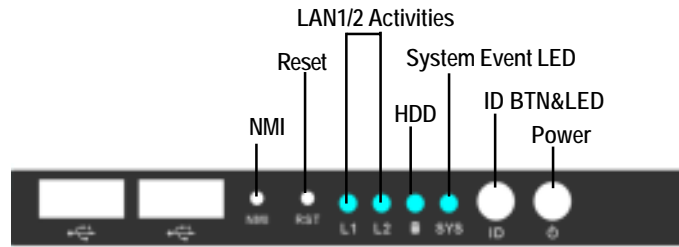


| Name | Color | Condition | Description |
|---|---|---|---|
| Power | Green | On | Power On |
| | Green | Blink | Sleep (S1) |
| | -- | Off | Power Off (S4) |
| SYS (System) | Amber | Blink | System Ready but degraded, CPU Failed, DIMM Killed |
| | Amber | On | Critical Alarm: Critical Power Module Failure, Critical FANs Failure, Voltage (Power Supply) Critical Teemperature and Voltage |
| | -- | Off | System healthy. |
| HDD | Green | Blink | Hard Disk Drive Access |
| | Amber | On | HDD Fault |
| | Amber | Blink | HDD Rebuild |
| | -- | Off | No Access and No HDD Fault |
| LAN1 Activity | Green | On | LAN Link / No access |
| | Green | Blink | LAN access |
| | -- | Off | Idle |
| LAN2 Activity | Green | On | LAN Link / No access |
| | Green | Blink | LAN access |
| | -- | Off | Idle |
| ID (Identification) | Blue | On | Unti selected for identification |
| | -- | Off | No identification |

## 3-4: LAN LED Description
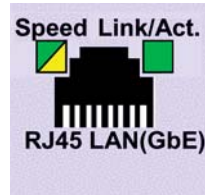


| Name | Color | Condition | Description |
|---|---|---|---|
| LAN | Green | ON | LAN Link / no Access |
| Link/Activity | Green | BLINK | LAN Access |
| | - | OFF | Idle |
| GbE LAN | Yellow | ON | 1Gbps connection |
| Speed | Green | ON | 100Mbps connection |
| | - | OFF | 10Mbps connection |

## 3-5 : Connector Icon Description

| Suggest Icon | Description |
|---|---|
| | Keyboard |
| | VGA |
| | Mouse |
| | LAN |
| | Serial Port |
| | USB |

# Chapter 4 Motherboard Layout & Jumper Setting

## 4-1: GA-9IVDPC Motherboard Layout
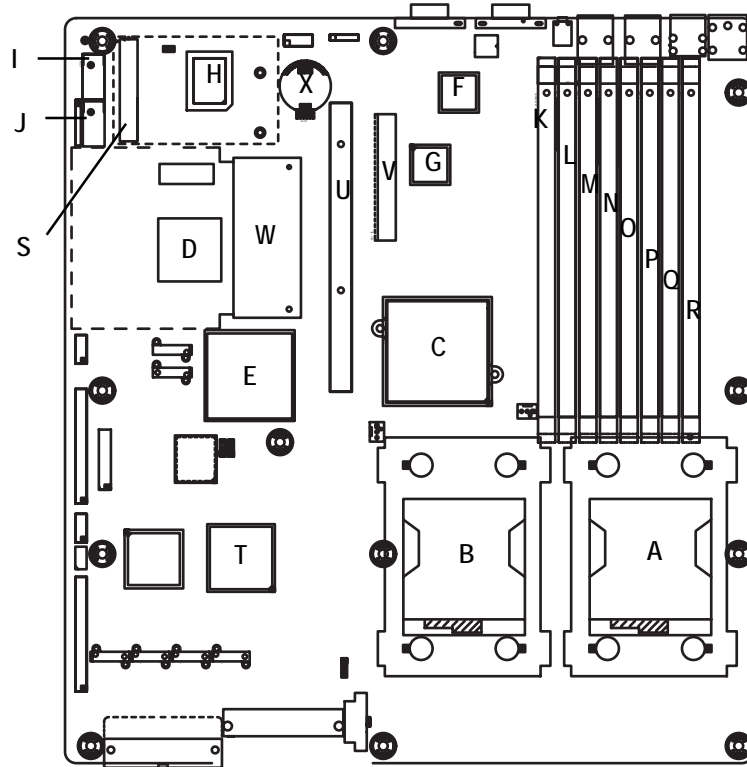
| A | CPU 0 | M | DDR A2 |
|---|---|---|---|
| B | CPU1 | N | DDR B2 |
| C | Intel MCH E7320 | O | DDR A3 |
| D | ATI Rage-XL | P | DDR B3 |
| E | Intel 6300ESB | Q | DDR A4 |
| F | Broadcom® BCM5705 | R | DDR B4 |
| G | Broadcom® BCM 5721 | S | IPMI Connector |
| H | IT8712F-IX | T | Adaptec AIC-7901X |
| I | COM2 | U | PCI-X_1 (64/66MHz) |
| J | GPIO | V | PCI-E ( x4 Lane  x8 Slot ) |
| K | DDR A1 | W | SO-DIMM Type ZCR Extention Slot ** |
| L | DDR B1 | X | Battery |

**This device is use for Adaptec ASR-2015s and ASR-2025s ZCR population.

## 4-2: DDR DIMM Slot Population

### Table 4-2-1: Supported DDR266 DIMM Populations

NOTE!! For DDR-266 DIMM population, DIMM must be populated starting from the A4/B4 slots.

| DIMM Configuration | DIMM1 | DIMM2 | DIMM3 | DIMM4 |
|---|---|---|---|---|
| 1 Single Rank | Empty | Empty | Empty | Single Rank |
| 1 Dual Rank | Empty | Empty | Empty | Dual Rank |
| 2 Single Rank | Empty | Empty | Single Rank | Single Rank |
| 1 Dual Rank, 1 Single Rank | Empty | Empty | Dual Rank | Single Rank |
| 2 Dual Rank | Empty | Empty | Dual Rank | Dual Rank |
| 3 Single Rank | Empty | Single Rank | Single Rank | Single Rank |
| 1 Dual Rank, 2 Single Rank | Empty | Dual Rank | Single Rank | Single Rank |
| 2 Dual Rank, 1 Single Rank | Empty | Dual Rank | Dual Rank | Single Rank |
| 3 Dual Rank | Empty | Dual Rank | Dual Rank | Dual Rank |
| 4 Single Rank | Single Rank | Single Rank | Single Rank | Single Rank |
| 1Dual Rank, 3 Single Rank | Dual Rank | Single Rank | Single Rank | Single Rank |
| 2 Single Rank, 2 Dual Rank | Dual Rank | Dual Rank | Single Rank | Single Rank |
| 3 Dual Rank, 1 Single Rank | Dual Rank | Dual Rank | Dual Rank | Single Rank |
| 4 Dual Rank | Dual Rank | Dual Rank | Dual Rank | Dual Rank |

### Table 4-2-2: Supported DDR333 DIMM Populations

NOTE!! For DDR-333 DIMM population, DIMM must be populated starting from the A3/B3 slots. A4/B4 slots cannot be applied for DDR-333 DIMM. The mainboard only supports 6 DIMMs for DDR-333.

| DIMM Configuration | DIMM1 | DIMM2 | DIMM3 |
|---|---|---|---|
| 1 Single Rank | Empty | Empty | Single Rank |
| 1 Dual Rank | Empty | Empty | Dual Rank |
| 2 Single Rank | Empty | Single Rank | Single Rank |
| 1 Dual Rank, 1 Single Rank | Empty | Dual Rank | Single Rank |
| 2 Dual Rank | Empty | Dual Rank | Dual Rank |
| 3 Single Rank | Single Rank | Single Rank | Single Rank |
| 1 Dual Rank, 2 Single Rank | Dual Rank | Single Rank | Single Rank |

GS-SR195V Rack Mount Server

## 4-3: Jumper Setting

### CLR_CMOS ( (Clear CMOS Function)

You may clear the CMOS data to its default values by this jumper.
**Default value doesn't include the "Shunter" to prevent from improper use this jumper.**
**To clear CMOS, temporarily short 1-2 pin.**
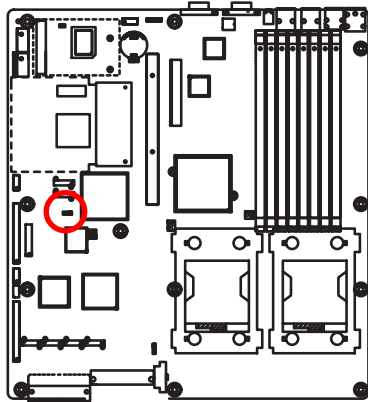


1-2 close: Clear CMOS

2-3 close: Normal (Default value)

### BIOS_TBL (CMOS Lock Function)
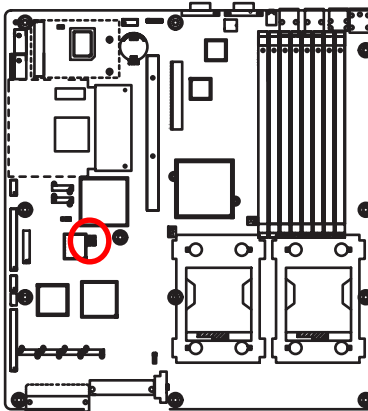


1-2 close: Top block lock

2-3 close: Disable Top block function (Default value)

## BIOS_WP (BIOS Werite Protect Function)
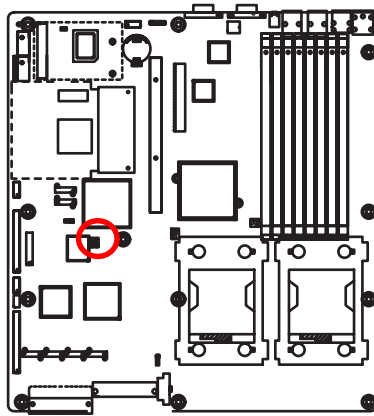


1  1-2 close: Enable BIOS Write Protect Function

1  2-3 close: BIOS writable. (Default value)

# Chapter 5 BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

**ENTERINGSETUP**

Power ON the computer and press <F2> immediately will allow you to enter Setup.

**CONTROLKEYS**

| | |
|---|---|
| <↑> | Move to previous item |
| <↓> | Move to next item |
| <←> | Move to the item in the left hand |
| <→> | Move to the item in the right hand |
| <Esc> | Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu |
| <+/PgUp> | Increase the numeric value or make changes |
| <-/PgDn> | Decrease the numeric value or make changes |
| <F1> | General help, only for Status Page Setup Menu and Option Page Setup Menu |
| <F2> | Reserved |
| <F3> | Reserved |
| <F4> | Reserved |
| <F6> | Reserved |
| <F7> | Reserved |
| <F8> | Reserved |
| <F9> | Load the Optimized Defaults |
| <F10> | Save all the CMOS changes, only for Main Menu |

**GETTINGHELP**

### Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

- **Main**

  This setup page includes all the items in standard compatible BIOS.

- **Advanced**

  This setup page includes all the items of AMI special enhanced features.

  (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

- **Security**

  Change, set, or disable password. It allows you to limit access the system and setup.

- **Server**

  Server additional features enabled/disabled setup menus.

- **Boot**

  This setup page include all the items of first boot function features.

- **Exit**

  There are five optionsin this selection: Exit Saving Changes, Exit Discarding Changes, Load Optimal Defaults, Load Failsafe Defaults, and Discard Changes.

# Main

Once you enter Phoenix BIOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

```
                        PhoenixBIOS Setup Utility
  Main        Advanced       Security       Server     Boot        Exit
  System Time:              [00:13:12]                Item Specific Help
  System Date:              [01/01/2005]

  ▶ IDE Channel 0 Master    [CD-ROM]
  ▶ IDE Channel 0 Slave     [None]
  ▶ IDE Channel 2 Master    [None]
  ▶ IDE Channel 3 Slave     [None]
    ▶ System Information




 F1: Help         ↑↓: Select Item      + -: Change Values    F5: Setup Defaults
 Esc: Exit        ←→: Select Menu      Enter: Select ▶ Sub-Menu    F10: Save&Exit
```

Figure 1: Main

☞ **System Time**

The time is calculated based on the 24-hour military time clock. Set the System Time (HH:MM:SS)

☞ **System Date**

Set the System Date. Note that the "Day" automatically changed after you set the date.
(Weekend: DD: MM: YY) (YY: 1099~2099)

## ☞ IDE Channel 0 Master, Slave / Channel 1 Master, Slave, Serial ATA

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and manual type. Manual type is user-definable; Auto type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

▸ TYPE

1-39: Predefined types.

Users: Set parameters by User.

Auto: Set parameters automatically. (Default Vaules)

CD-ROM: Use for ATAPI CD-ROM drives or double click [Auto] to set all HDD parameters automatically.

ATAPI Removable: Removable disk drive is installed here.

▸ Multi-Sector Transfer

This field displays the information of Multi-Sector Transfer Mode.

Disabled: The data transfer from and to the device occurs one sector at a time.

Auto: The data transfer from and to the device occurs multiple sectors at a time if the device supports it.

▸ LBA Mode        This field shows if the device type in the specific IDE channel support LBA Mode.

▸ 32-Bit I/O      Enable this function to max imize the IDE data transfer rate.

▸ Transfer Mode   This field shows the information of Teansfer Mode.

▸ Ultra DMA Mode  This filed displays the DMA mode of the device in the specific IDE channel.

## ☞ System Information

This category includes the information of Processor Type, Speed, Extended memory, BIOS Version, BIOS Date, System Product Name, System serial number, System version, System UUID, Main Board ID, and Main Board Serial number.

# Advanced

## About This Section: Advanced

With this section, allowing user to configure your system for basic operation. User can change the processor options, chipset configuration, PCI configuration and chipset control.

```
┌─────────────────────────────────────────────────────────────────────────┐
│                        PhoenixBIOS Setup Utility                          │
├───────────────────────────────────────────────────────────────────────── │
│  Main      Advanced     Security      Server    Boot      Exit            │
├─────────────────────────────────────────┬───────────────────────────────┤
│  ▶ PCI Configuration                     │      Item Specific Help        │
│                                          │                                │
│  ▶ Advanced Chipset Control              │                                │
│                                          │                                │
│  ▶ Advanced Processor Option             │                                │
│                                          │                                │
│  ▶ Peripheral Configuration              │                                │
│                                          │                                │
│  ▶ Hardware Monitor                      │                                │
│                                          │                                │
│  Reset Configuration Data       [No]     │                                │
│                                          │                                │
│  ClkGen Spread Spectrum         [Disabled]│                               │
│                                          │                                │
│  System After AC Back           [Pre-State]│                             │
│                                          │                                │
│  Extended Memory Testing        [Enabled]│                                │
│                                          │                                │
│  Network Server                 [Enabled]│                                │
│                                          │                                │
│  Clear Case Open Log            [Enter]  │                                │
│                                          │                                │
├─────────────────────────────────────────┴───────────────────────────────┤
│  F1: Help          ↑↓: Select Item     + -: Change Values   F5: Setup Defaults │
│  Esc: Exit         ←→: Select Menu      Enter: Select ▶ Sub-Menu   F10: Save&Exit │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 2: Advanced

## PCI Configuration

| PhoenixBIOS Setup Utility | |
|---|---|
| PCI Configuration | Item Specific Help |
| ▶ Embedded Vedio Controller<br>▶ Embedded SCSI Controller<br>▶ Embedded NIC<br>▶ Embedded NIC (Gbit#2) | |
| F1: Help          ↑↓: Select Item          + -: Change Values     F5: Setup Defaults<br>Esc: Exit          ←→: Select Menu          Enter: Select ▶ Sub-Menu     F10: Save&Exit | |

Figure 2-1: PCI Configuration

**☞ Embedded Video Controller**

▶ **Onboard VGA Control**

▸ Enabled             Enable onboard VGA device. (Default value)

▸ Disabled            Disable this function.

**☞ Embedded SCSI Controller**

▶ **Option ROM Scan**

▸ Enabled             Enableing this item to initialize device expansion ROM.

                      (Defualt value)

▸ Disabled            Disable this function.

**☞Embedded NIC (Gbit #1 / 2)**

▶ **Onboard LAN Control**

▸ Enabled            Enable onboard LAN 1 / 2 device. (Default value)

▸ Disabled            Disable this function.

▶ **Option ROM Scan**

▸ Enabled            Enableing this item to initialize device expansion ROM.

▸ Disabled            Disable this function. (Defualt value)

## Advanced Chipset Control

| PhoenixBIOS Setup Utility | |
| --- | --- |
| Advanced Chipset Control | Item Specific Help |
| USB Controller              [Enabled] | |
| Legacy USB Support          [Disabled] | |
| Force Compliance Mode       [Enabled] | |
| PCI-E port A Device 2       [Enabled] | |
| PCI-E port A1 Device 3      [Enabled] | |
| 4GB PCI Hole Granularity    [128MB] | |
| Data Parity Error Recovery  [Enabled] | |
| Memory Frequency            [Auto] | |
| Wake On LAN                 [Enabled] | |
| F1: Help          ↑↓: Select Item          + -: Change Values     F5: Setup Defaults<br>Esc: Exit          ←→: Select Menu          Enter: Select ▶ Sub-Menu    F10: Save&Exit | |

Figure 2-2: Advanced Chipset Control

☞**USB Controller**

This item allows users to enable or disable the USB device by setting item to the desired value.

▸Enabled                    Enable USB controller. (Default value)

▸Options                    Disbale this function.

☞**Legacy USB Support**

This option allows user to function support for legacy USB.

▸Enabled          Enables support for legacy USB. (Default Value)

▸Disabled          Disables support for legacy USB.

**☞Force Compliance Mode**

> This option allows user to function PCI-E Compliance mode by setting item to desired value.

> ‣Enabled                          Enables PCI-E Force Compliance mode. (Default Value)

> ‣Disabled                          Disables this function.

**☞PCI-E port A Device 2**

> Force PCI Express v1.0 Compability Mode, this PCI-E port A by setting to desired value.

> ‣Force PCI Express 1.0         Force PCI Express v1.0 Compability Mode.

> ‣Enabled                          Enables PCI-E port A Device2 (Default Value)

> ‣Disabled                          Disables this function.

**☞PCI-E port A1 Device 3**

> Force PCI Express v1.0 Compability Mode, this PCI-E port A1 by setting to desired value.

> ‣Force PCI Express 1.0         Force PCI Express v1.0 Compability Mode.

> ‣Enabled                          Enables PCI-E port A1 Device3 (Default Value)

> ‣Disabled                          Disables this function.

**☞4GB PCI Hole Granularity**

> Select the granularity of PCI hole for PCI resource. If MTRRS are not enough, we may use this option to reduce the MTRR occupation.

> ‣128MB                          Select 128MB as granularity of PCI hole. (Default value)

> ‣256MB                          Select 256MB as granularity of PCI hole.

**☞Data Parity Error Recovery**

> ‣Enabled                          Enable data parity error recovery function. (Default vaules)

> ‣Disabled                          Disable this function.

**☞Memory Frequency**

Determine the specifiy memory frequency.

▸266MHz                              Select  266MHz as memory frequecncy for system.

▸333MHz                              Select  333MHz as memory frequecncy for system.

▸Auto                                  Auto determine memory frequency for system.

(Default values)

**☞Wake On LAN**

This option allow user to determine the action of the system when a LAN wake up occurs.

▸Enabled                              Enable Wake On LAN. (Default value)

▸Disabled                             Disable this function.

**Note:** This item must enabled if you're running under Windows operating system.

## Advanced Processor Option

| PhoenixBIOS Setup Utility | | |
|---|---|---|
| Advanced Processor Option | | Item Specific Help |
| Hyper Threading Technology | [Enabled] | |
| Machine Cecking | [Disabled] | |
| Thermal Management 2 | [Disabled] | |
| Adjacent Cache Line Prefetch | [Enabled] | |
| Set Max Ext CPUID = 3 | [Disabled] | |
| Thermal Management 1 | [Disabled] | |
| NX Protection | [Enabled] | |
| F1: Help     ↑↓: Select Item     + -: Change Values     F5: Setup Defaults<br>Esc: Exit     ←→: Select Menu     Enter: Select ▶ Sub-Menu     F10: Save&Exit | | |

Figure 2-3: Advanced Processor Option

☞ **Hyper Threading Technology**

> ▶ Enabled        Enables Hyper-Threading Technology Feature when using Windows
> XP operating systems that are optimized for Hyper-Threading
> technology. (Default value)

> ▶ Disabled       Disables Hyper-Threading Technology when using other operating
> systems.

☞ **Machine Checking**

> ▶ Enabled        EnableMachine Checking. (Default value)

> ▶ Disabled       Disable this function.

### ☞ Thermal Managerment 2

Select between TM1 and TM2.

➥ Enabled          Select Thermal Management 2 function.

➥ Disabled         Disable this function. (Default value)

### ☞ Adjacent Cache Line Prefetch

➥ Enabled          Processor will fetch both cache lines when it requires data that is not
                    currently inits cache. (Defualt value)

➥ Disabled         Processor will only fetch the cache line that contains the data currently
                    required by the processor.

### ☞ Set Max Ext CPUID = 3

Set MAX CPUID extended function value to 3.

➥ Enabled          Enable Set Max Ext CPUID = 3 function.

➥ Disabled         Disable this function. (Default value)

### ☞ Thermal Managerment 1

If enabled, when the thermal sensor  indicates that the die temperature is at the pre-determined
threshold, the processor will reduce the bus to core ratio and operating voltage.

➥ Enabled          Enable Thermal Management 1 function. (Default value)

➥ Disabled         Disable this function.

### ☞ NX Protection

This category provides user to enable virus protection avoiding unknow and spite attack.

➥ Enabled          NX Protection function. (Default value)

➥ Disabled         Disable this function.

## Peripheral Configuration

| PhoenixBIOS Setup Utility | | |
|---|---|---|
| Peripheral Configuration | | Item Specific Help |
| Serial Port A | [Enabled] | |
|    Base I/O address/IRQ | [3F8/IRQ4] | |
| Serial Port B | [Enabled] | |
|    Base I/O address/IRQ | [2F8/IRQ3] | |
| Floppy disk  controller | [Enabled] | |
| Floppy Check | [Enabled] | |
| Parallel ATA | [Both] | |
| Serial ATA | [Enabled] | |
| Native Mode Operation | [Auto] | |
| | | |
| F1: Help      ↑↓: Select Item     + -: Change Values    F5: Setup Defaults | | |
| Esc: Exit      ←→: Select Menu    Enter: Select ▶ Sub-Menu   F10: Save&Exit | | |

Figure 2-4: Peripheral Configuration

### ↻Serial Port A

This allows users to configure serial prot A by using this option.

▸Disabled      Disable the configuration.

▸Enabled      Enable the configuration (Default value)

▸ **Base I/O Address/IRQ**

▸3F8/IRQ4    Set IO address to 3F8.   (Default value)

▸2F8/IRQ3    Set IO address to 2F8.

▸3E8/IRQ4    Set IO address to 3E8.

▸2E8/IRQ3    Set IO address to 2E8.

**☞Serial Port B**

This allows users to configure serial prot B by using this option.

▸▸Disabled          Disable the configuration.

▸▸Enabled           Enable the configuration (Default value)

 

▸  **Base I/O Address/IRQ**

▸▸3F8/IRQ4     Set IO address to 3F8.

▸▸2F8/IRQ3     Set IO address to 2F8. (Default value)

▸▸3E8/IRQ4     Set IO address to 3E8.

▸▸2E8/IRQ3     Set IO address to 2E8.

**☞Floppy disk controller**

▸▸Enabled              Enable the floppy disk controller. (Default value)

▸▸Disabled             Disable the device.

**☞Floppy Check**

▸▸Enabled              Enable the device to verify floppy typer when system boot.

▸▸Disabled             Disable the this function. (Default value)

**☞Parallel ATA**

▸▸Disabled             Disable the device.

▸▸Both                 Select both Channel 0 and Channel 1 as Parallel ATA.
                      (Default value)

▸▸Channel 0            Select both Channel 0 as Parallel ATA.

▸▸Channel1             Select both Channel 1 as Parallel ATA.

**☞ Serial ATA**

    ▸ Enabled                    Enable Serial ATA device. (Default value)

    ▸ Disabled                  Disable the Serial ATA.

**☞ Native Mode Operation**

    This option allows user to set the native mode for ATA function.

    Note that certain OS is not supported under Native Mode.

    ▸ Auto           Auto detected. (Default value)

    ▸ Serial ATA     Set Native mode to Serial ATA.

    ▸ Parallel ATA   Set Native mode to Parallel ATA.

**☞ Reset Configuration Data**

    ▸ Yes           Clear the Extended System Configuration Data (ESCD) area.

    ▸ No            Disable this function. (default value)

**☞ Clk Gen Spread Spectrum**

    ▸ Enabled      Enable ClkGen Spread Spectrum.

    ▸ Disabled     Disabled this function. (Default value)

**☞ System After AC Back**

    Set the mode od operation if an AC/Power loss occurs.

    ▸ Power On    Power on system without pressing power button.

    ▸ Stay Off     Keep the power off until the power button is pressed.

    ▸ Pre- State   Set system to the last sate when AC power is removed. Do not power on system when AC power is back. (Default value)

☞**Extended Memory Testing**

Determine which type of tests will be performed extended memory. (above 1M)

  ▸Enabled        Enable Extended Memory Testing. (Default value)

  ▸Disabled       Disable this function.

☞**Network Server**

  ▸Enabled        System will be secured at boot to prevent tampering during network

                        operation. (Default value)

  ▸Disabled       Disable this function.

☞**Clear Case Open Log**

Press [Enter] to clear the Case Open Log.

When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:

| Setup Confirmation |
| :---: |
| Are you sure to clear the Case Open Log? |
| [Yes]                  [No] |
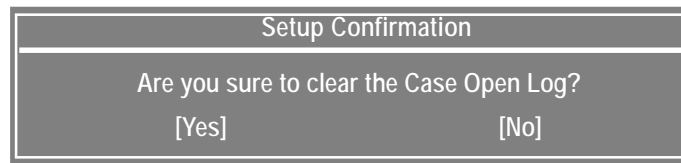
BIOS Setup

## Hardware Monitor

| PhoenixBIOS Setup Utility | |
|---|---|
| Hardware Monitor | Item Specific Help |
| CPU 1 Temperature          38C/100F | |
| CPU 2 Temperature          38C/100F | |
| System Temperature         38C/100F | |
| W83792d Temperature  1     33C/091F | |
| W83792d  Temperature  2    33C/091F | |
| W83792d  Temperature  3    33C/091F | |
| ▶ Voltage  Monitor | |
| ▶ Fan Monitor | |
| F1: Help              ↑↓: Select Item      + -: Change Values     F5: Setup Defaults<br>Esc: Exit            ←→: Select Menu     Enter: Select ▶ Sub-Menu    F10: Save&Exit | |

Figure 2-5: Hardware Monitor

☞ **CPU 1&2/ System/ W83792d 1/2/3 Temperature**

⊪ Display the current CPU1/2 temperature, System, and W83792d 1/2/3 ambient temperature.

☞ **Voltage:  VCORE 1&2/ 3.3V/ +12V  / 1.5V / 2.5V**

⊪ Detect system's voltage status automatically.

☞ **FAN(RPM)**

⊪ Display the current CPUs, and Power FAN speed.

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# Security

| PhoenixBIOS Setup Utility | | | | | |
|---|---|---|---|---|---|
| Main | Advanced | Security | Server | Boot | Exit |

| | | | |
|---|---|---|---|
| Supervisor Password Is: | Clear | | Item Specific Help |
| User Password Is: | Clear | | |
| Set Supervisor Password | [Enter] | | |
| Set User Password | [Enter] | | |
| Password On Boot | [Disabled] | | |

F1: Help      ↑↓: Select Item      + -: Change Values      F5: Setup Defaults

Esc: Exit      ←→: Select Menu      Enter: Select ▶ Sub-Menu      F10: Save&Exit

Figure 3: Security

## ♪ About This Section: Security

In this section, user can set either supervisor or user passwords, or both for different level of password securities. In addition, user also can set the virus protection for boot sector.

### ☞Set Supervisor Password

You can install and change this options for the setup menus. Type the password up to 6 characters in lengh and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. You will be asked to confirm the entered password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a specified password or press <Enter> key to disable this option.

**☞Set User Password**

You can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password up to 6 characters in lengh and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. You will be asked to confirm the entered password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a specified password.

**☞Password on boot**

Password entering will be required when system on boot.

▸ Enabled        Requries entering password when system on boot.

▸ Disabled       Disable this function. (Default value)

# Server

| PhoenixBIOS Setup Utility | | | | | |
|---|---|---|---|---|---|
| Main | Advanced | Security | Server | Boot | Exit |

| | |
|---|---|
| ▶ Console Redirection | Item Specific Help |
| Halt On　　　　　　　　　　　[Mid] | |
| Clear Mem. ECC Error Info.　　[Disabled] | |
| Fatal A on port A　　　　　　　[Enabled] | |

F1: Help　　　　↑↓: Select Item　　　+ -: Change Values　　F5: Setup Defaults
Esc: Exit　　　　←→: Select Menu　　Enter: Select ▶ Sub-Menu　　F10: Save&Exit

Figure 4: Server

## Console Redirection

| PhoenixBIOS Setup Utility | |
|---|---|
| Console Redirection | Item Specific Help |
| Com Port Address | |
| Baud Rate　　　　　　　　[19.2K] | |
| Console Type　　　　　　　[Direct] | |
| Flow Control　　　　　　　[CTS/RTS] | |
| Continue C.R after POST　　[Off] | |

F1: Help　　　　↑↓: Select Item　　　+ -: Change Values　　F5: Setup Defaults
Esc: Exit　　　　←→: Select Menu　　Enter: Select ▶ Sub-Menu　　F10: Save&Exit

Figure 4-1: Console Redirection

### ☞ Com Port Address

If this option is set to enabled, it will use a port on the motherboard.

▸ On-board COMA        Use COMA as he COM port address.

▸ On-board COMB        Use COMB as he COM port address.

▸ Disabled              Disable this function. (Default value)

### ☞ Baud Rate

This option allows user to set the specified baud rate.

▸ Options              300, 1200, 2400, 9600, 19.2K, 38.4K, 57.6K, 115.2K.

### ☞ Console Type

This option allows user to select the specified console type. This is defined by IEEE. PC-ANSI is the standard PC-type terminal. Note that for VT100+, you must select English as your languuage. And VT-UTF8 uses unicode.

▸ Options              vt100, vt100+, vt100 8bit, PC ANSI 7bit, PC-ANSI, VT-UTF8.

### ☞ Flow Control

Enables Flow Control when EMP is dahring the same serial port as console redirection, the flow control must be set to CTS/RTS or CTS/RTS+CD depending on whether a modem is used.

▸ None                 Not supported.

▸ XON/OFF            Software control.

▸ CTS/RTS            Hardware control. (Default values)

### ☞ Continue C.R. after POST

This option allows user to enable console redirection after O.S has loaded.

▸ On                   Enable console redirection after O.S has loaded.

▸ Off                  Disable this function. (Default value)

### ☞ **Halt On**

The category determines whether the computer will stop if an error is detected during power up.

|  |  |
|---|---|
| ▸▸ NO Errors | The system boot will not stop for any error that may be detected and  you will be prompted. |
| ▸▸ All Errors | Whenever the BIOS detects a non-fatal error the system will be stopped. |
| ▸▸ Mid | The system boot will not stop for a keyboard or disk error; it will stop for all other errors.  (Default value) |

### ☞ **Clear Mem. ECC Error Info**

|  |  |
|---|---|
| ▸▸ Enabled | Enable Clear memory ECC error information function. |
| ▸▸ Disabled | Disable this function. (Default value) |

### ☞ **Fatal Error on port A**

|  |  |
|---|---|
| ▸▸ Enabled | Enable Fatal Erre on port A. (Default value) |
| ▸▸ Disabled | Disable this function. |

# Boot

| PhoenixBIOS Setup Utility | | | | | |
|---|---|---|---|---|---|
| Main | Advanced | Security | Server | Boot | Exit |

| | |
|---|---|
| + CD-ROM Drive | Item Specific Help |
| + Hard Drive | |
| Removable Device | |
| MBA V8.1.53 Slot 0100 | |
| MBA V8.1.53 Slot 0420 | |

| | | | |
|---|---|---|---|
| F1: Help | ↑↓: Select Item | + -: Change Values | F5: Setup Defaults |
| Esc: Exit | ←→: Select Menu | Enter: Select ▶ Sub-Menu | F10: Save&Exit |

Figure 5: Boot

🖐 **About This Section: Boot**

The "Boot" menu allows user to select among four possible types of boot devices listed using the up and down arrow keys. By applying <+> and <Space> key, you can promote devices and by using the <-> key, you can demote devices. Promotion or demotion of devices alerts the priority that the system uses to search for boot device on system power on.

☞ **Boot Device Priority**

▶ **Removable Device / Hard Drive / CD-ROM Drive/**

These three fields determines which type of device the system attempt to boot from after **PhoenixBIOS Post** completed. Specifies the boot sequence from the available devices. If the first device is not a bootable device, the system will seek for next available device.

# Exit

| PhoenixBIOS Setup Utility | | | | | |
|---|---|---|---|---|---|
| Main | Advanced | Security | Server | Boot | Exit |
| Exit Saving Changes | | | | Item Specific Help | |
| Exit Discarding Changes | | | | | |
| Load Setup Default | | | | | |
| Discard Changes | | | | | |
| Save Changes | | | | | |
| F1: Help    ↑↓: Select Item    + -: Change Values    F5: Setup Defaults | | | | | |
| Esc: Exit    ←→: Select Menu    Enter: Select ▶ Sub-Menu    F10: Save&Exit | | | | | |

Figure 6: Exit

**♦ About This Section: Exit**

Once you have changed all of the set values in the BIOS setup, you should save your chnages and exit BIOS setup program. Select **"Exit"** from the menu bar, to display the following sub-menu.

- ☞ **Exit Saving Changes**
- ☞ **Exit Discarding Changes**
- ☞ **Load Setup Default**
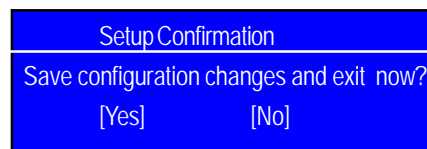- ☞ **Discard Change**
- ☞ **Save Changes**

☞**Exit Saving Changes**

This option allows user to exit system setup with saving the changes.

Press <Enter> on this item to ask for the following confirmation message:

Pressing 'Y' to store all the present setting values tha user made in this time into CMOS.
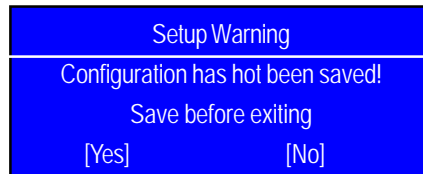
Therefore, whenyou boot up your computer next time, the BIOS will

re-configure your system according data in CMOS.

| Setup Confirmation |
| :---: |
| Save configuration changes and exit  now? |
| [Yes]            [No] |

☞**Exit Discarding Changes**

This option allows user to exit system setup without changing any

previous settings values in CMOS. The previous selection remain in effect.

This will exit the Setup Utility and restart your compuetr when selecting this option.

Press <Enter> on this item to ask for confirmation message.

| Setup Warning |
| :---: |
| Configuration has hot been saved! |
| Save before exiting |
| [Yes]            [No] |

☞**Load Settup Default**

This option allows user to load default values for all setup items.

When you press <Enter> on this item, you will get a confirmation dialog box with a message
as below:

| Setup Confirmation |
| :---: |
| Load default configuratin now? |
| [Yes]         [No] |
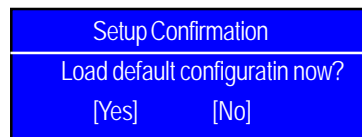
## ☞Discard Changes

This option allows user to load previos values from CMOS for all setup item.

When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:

```
          Setup Confirmation
  Load previous configuration now?
       [Yes]            [No]
```
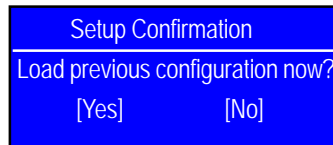
## ☞Save Changes

This option allows user to save setup dat ato CMOS.

When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:

```
          Setup Confirmation
  Save configuration changes now?
       [Yes]            [No]
```
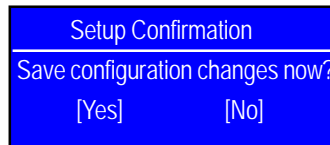
Press [Yes] to save setup daya to CMOS.

# Chapter 6 Appendix

## 6-1: Acronyms

| Acronyms | Meaning |
|----------|---------|
| ACPI | Advanced Configuration and Power Interface |
| APM | Advanced Power Management |
| AGP | Accelerated Graphics Port |
| AMR | Audio Modem Riser |
| ACR | Advanced Communications Riser |
| BBS | BIOS Boot Specification |
| BIOS | Basic Input / Output System |
| CPU | Central Processing Unit |
| CMOS | Complementary Metal Oxide Semiconductor |
| CRIMM | Continuity RIMM |
| CNR | Communication and Networking Riser |
| DMA | Direct Memory Access |
| DMI | Desktop Management Interface |
| DIMM | Dual Inline Memory Module |
| DRM | Dual Retention Mechanism |
| DRAM | Dynamic Random Access Memory |
| DDR | Double Data Rate |
| ECP | Extended Capabilities Port |
| ESCD | Extended System Configuration Data |
| ECC | Error Checking and Correcting |
| EMC | Electromagnetic Compatibility |
| EPP | Enhanced Parallel Port |
| ESD | Electrostatic Discharge |
| FDD | Floppy Disk Device |
| FSB | Front Side Bus |
| HDD | Hard Disk Device |
| IDE | Integrated Dual Channel Enhanced |
| IRQ | Interrupt Request |

| Acronyms | Meaning |
|---|---|
| I/O | Input / Output |
| IOAPIC | Input Output Advanced Programmable Input Controller |
| ISA | Industry Standard Architecture |
| LAN | Local Area Network |
| LBA | Logical Block Addressing |
| LED | Light Emitting Diode |
| MHz | Megahertz |
| MIDI | Musical Instrument Digital Interface |
| MTH | Memory Translator Hub |
| MPT | Memory Protocol Translator |
| NIC | Network Interface Card |
| OS | Operating System |
| OEM | Original Equipment Manufacturer |
| PAC | PCI A.G.P. Controller |
| POST | Power-On Self Test |
| PCI | Peripheral Component Interconnect |
| RIMM | Rambus in-line Memory Module |
| SCI | Special Circumstance Instructions |
| SECC | Single Edge Contact Cartridge |
| SRAM | Static Random Access Memory |
| SMP | Symmetric Multi-Processing |
| SMI | System Management Interrupt |
| USB | Universal Serial Bus |
| VID | Voltage ID |
| ZCR | Zero Channel RAID |